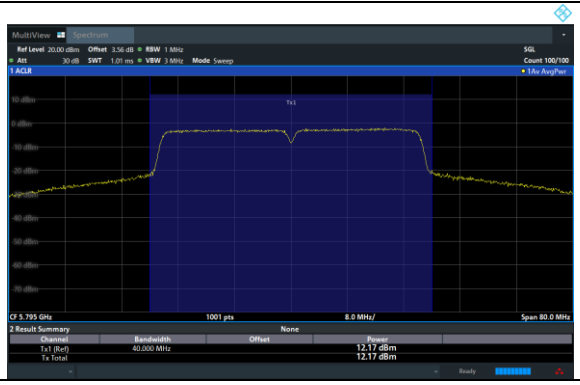
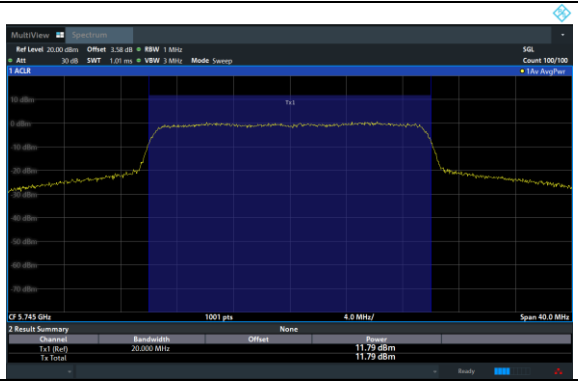
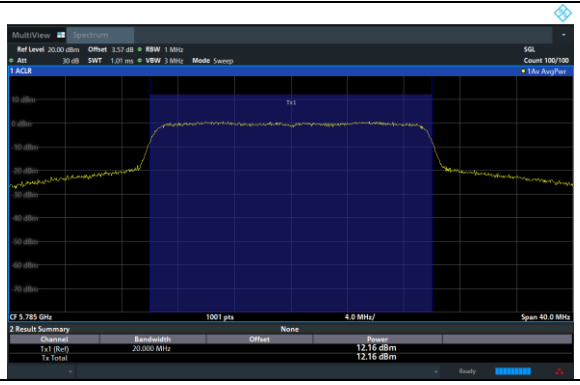
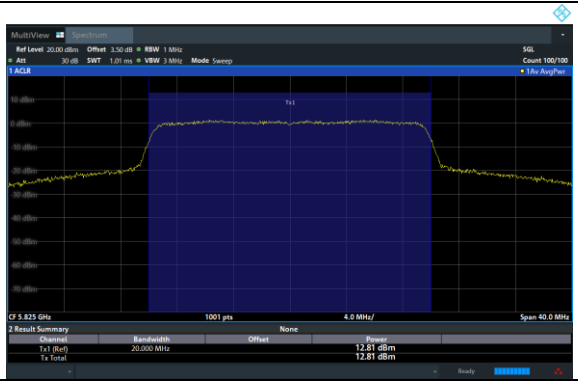
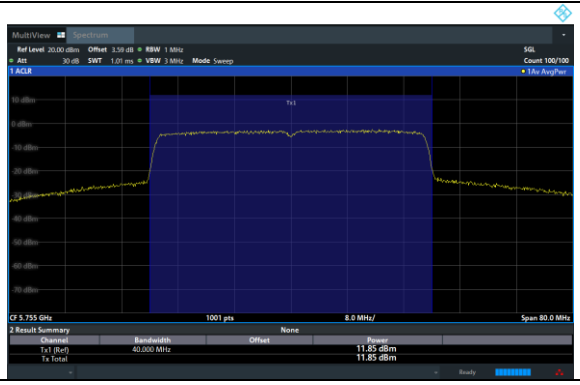
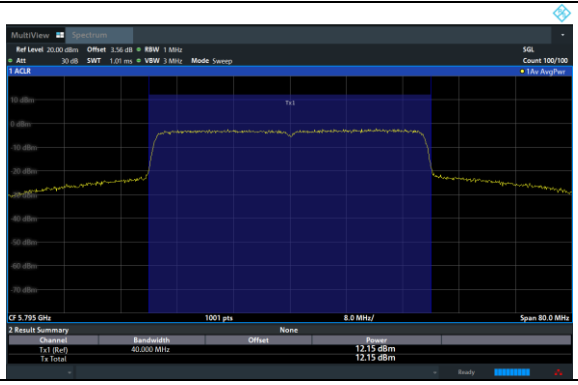
11ac40 CH159	11ax20 CH149
	
11ax20 CH157	**11ax20 CH165**
	
11ax40 CH151	**11ax40 CH159**
	

5.5 Power Spectral Density

5.5.1 Limit

For the band 5.15-5.25 GHz
For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.25-5.35 GHz and 5.47-5.725 GHz
The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

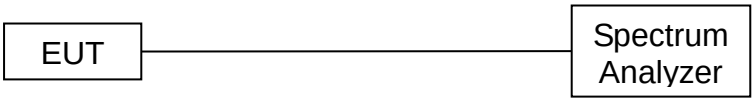
For the band 5.725-5.85 GHz
The maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.5.2 Test Procedure

For U-NII-1
1. Set analyzer center frequency to NII channel center frequency.
2. Set the RBW ≥ 1MHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

For U-NII-3
1. Set analyzer center frequency to NII channel center frequency.
2. Set the RBW ≥ 510kHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

5.5.3 Test Setup



5.5.4 Test Results

For U-NII-1

Mode	Channel	Frequency(MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH36	5180	1.95	0.11	2.06	11	Pass
11a	CH40	5200	2.22	0	2.22	11	Pass
11a	CH48	5240	1	0.11	1.11	11	Pass
11n(HT20)	CH36	5180	1.9	0.12	2.02	11	Pass
11n(HT20)	CH40	5200	2.02	0.14	2.16	11	Pass
11n(HT20)	CH48	5240	1.02	0.11	1.13	11	Pass
11n(HT40)	CH38	5190	-1.44	0.35	-1.09	11	Pass
11n(HT40)	CH46	5230	-1.98	0.1	-1.88	11	Pass
11ac(HT20)	CH36	5180	2.19	0.09	2.28	11	Pass
11ac(HT20)	CH40	5200	2.04	0.1	2.14	11	Pass
11ac(HT20)	CH48	5240	1.02	0.16	1.18	11	Pass
11ac(HT40)	CH38	5190	-1.55	0.19	-1.36	11	Pass
11ac(HT40)	CH46	5230	-2.06	0.27	-1.79	11	Pass
11ax(HE20)	CH36	5180	1.8	0	1.8	11	Pass
11ax(HE20)	CH40	5200	2.44	0.16	2.6	11	Pass
11ax(HE20)	CH48	5240	2.04	0.19	2.23	11	Pass
11ax(HE40)	CH38	5190	-0.86	0.37	-0.49	11	Pass
11ax(HE40)	CH46	5230	-1.52	0.36	-1.16	11	Pass

U-NII-2A

Mode	Channel	Frequency(MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH52	5260	-1.63	0	-1.63	11	Pass
11a	CH56	5280	-2.65	0.11	-2.54	11	Pass
11a	CH64	5320	-3.18	0	-3.18	11	Pass
11n(HT20)	CH52	5260	-1.72	0	-1.72	11	Pass
11n(HT20)	CH56	5280	-2.66	0	-2.66	11	Pass
11n(HT20)	CH64	5320	-3.11	0	-3.11	11	Pass
11n(HT40)	CH54	5270	-5.66	0	-5.66	11	Pass
11n(HT40)	CH62	5310	-6.79	0.12	-6.67	11	Pass
11ac(HT20)	CH52	5260	-1.7	0.13	-1.57	11	Pass
11ac(HT20)	CH56	5280	-2.6	0.1	-2.5	11	Pass
11ac(HT20)	CH64	5320	-3.06	0	-3.06	11	Pass
11ac(HT40)	CH54	5270	-5.72	0.2	-5.52	11	Pass
11ac(HT40)	CH62	5310	-6.69	0.16	-6.53	11	Pass
11ax(HE20)	CH52	5260	-2.19	0.14	-2.05	11	Pass

11ax(HE20)	CH56	5280	-3.02	0	-3.02	11	Pass
11ax(HE20)	CH64	5320	-3.6	0	-3.6	11	Pass
11ax(HE40)	CH54	5270	-5.96	0.23	-5.73	11	Pass
11ax(HE40)	CH62	5310	-7.1	0.38	-6.72	11	Pass

U-NII-2C

Mode	Channel	Frequency(MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH100	5500	-0.21	0	-0.21	11	Pass
11a	CH120	5600	-1.34	0	-1.34	11	Pass
11a	CH140	5700	-1.96	0.19	-1.77	11	Pass
11n(HT20)	CH100	5500	-0.07	0	-0.07	11	Pass
11n(HT20)	CH120	5600	-1.26	0	-1.26	11	Pass
11n(HT20)	CH140	5700	-2.89	0.13	-2.76	11	Pass
11n(HT40)	CH102	5510	-3.54	0.21	-3.33	11	Pass
11n(HT40)	CH110	5550	-3.56	0.16	-3.4	11	Pass
11n(HT40)	CH134	5670	-5.54	0.24	-5.3	11	Pass
11ac(HT20)	CH100	5500	-0.26	0	-0.26	11	Pass
11ac (HT20)	CH120	5600	-1.47	0	-1.47	11	Pass
11ac (HT20)	CH140	5700	-2.61	0.1	-2.51	11	Pass
11ac (HT40)	CH102	5510	-3.7	0.28	-3.42	11	Pass
11ac (HT40)	CH110	5550	-3.57	0.1	-3.47	11	Pass
11ac (HT40)	CH134	5670	-5.73	0.19	-5.54	11	Pass
11ax(HE20)	CH100	5500	-0.38	0.18	-0.2	11	Pass
11ax(HE20)	CH120	5600	-1.54	0.15	-1.39	11	Pass
11ax(HE20)	CH140	5700	-3.08	0	-3.08	11	Pass
11ax(HE40)	CH102	5510	-3.77	0.37	-3.4	11	Pass
11ax(HE40)	CH110	5550	-3.69	0	-3.69	11	Pass
11ax(HE40)	CH134	5670	-5.69	0	-5.69	11	Pass

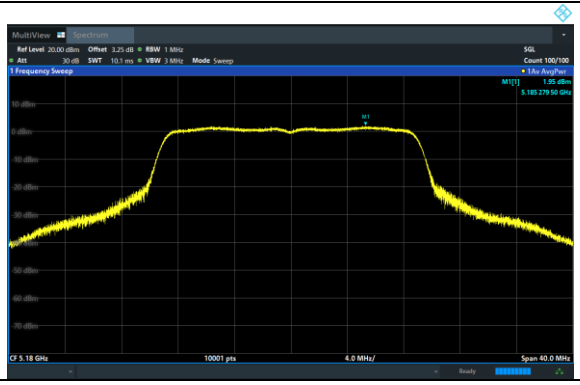
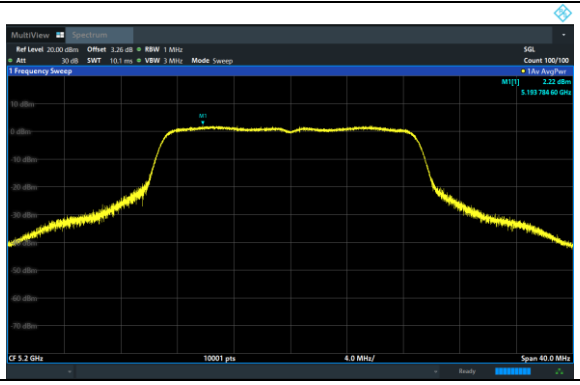
For U-NII-3

Mode	Channel	Frequency (MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/500kHz)	Result
11a	CH149	5745	-4.02	0.13	-3.89	30	Pass
11a	CH157	5785	-3.69	0	-3.69	30	Pass
11a	CH165	5825	-3.18	0	-3.18	30	Pass
11n(HT20)	CH149	5745	-1.33	0	-1.33	30	Pass
11n(HT20)	CH157	5785	-1.12	0	-1.12	30	Pass
11n(HT20)	CH165	5825	-0.74	0	-0.74	30	Pass
11n(HT40)	CH151	5755	-4.64	0.19	-4.45	30	Pass

11n(HT40)	CH159	5795	-4.53	0.2	-4.33	30	Pass
11ac(HT20)	CH149	5745	-1.26	0	-1.26	30	Pass
11ac(HT20)	CH157	5785	-0.97	0.14	-0.83	30	Pass
11ac(HT20)	CH165	5825	-0.47	0	-0.47	30	Pass
11ac(HT40)	CH151	5755	-4.79	0.13	-4.66	30	Pass
11ac(HT40)	CH159	5795	-4.6	0.32	-4.28	30	Pass
11ax(HE20)	CH149	5745	-1.88	0	-1.88	30	Pass
11ax(HE20)	CH157	5785	-1.42	0.17	-1.25	30	Pass
11ax(HE20)	CH165	5825	-0.76	0.16	-0.6	30	Pass
11ax(HE40)	CH151	5755	-4.8	0.13	-4.67	30	Pass
11ax(HE40)	CH159	5795	-4.43	0	-4.43	30	Pass

Test plots

For U-NII-1

11a CH36	11a CH40
	
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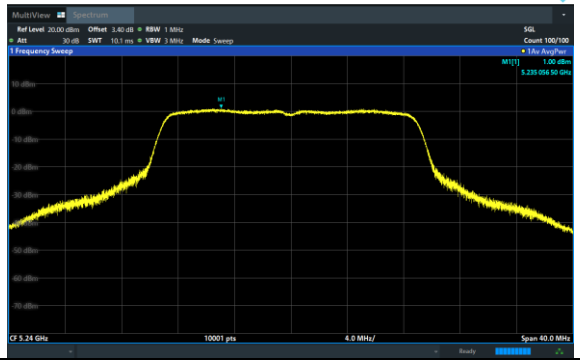	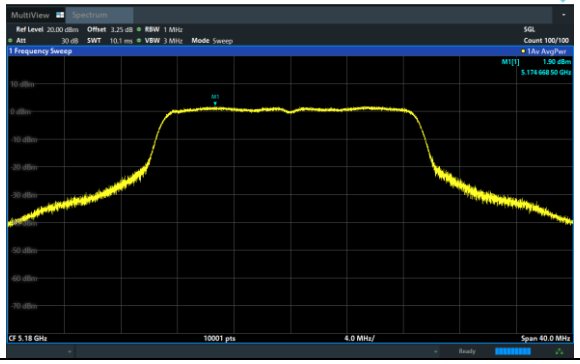
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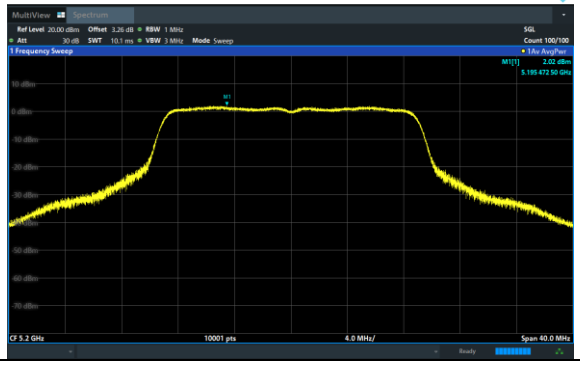	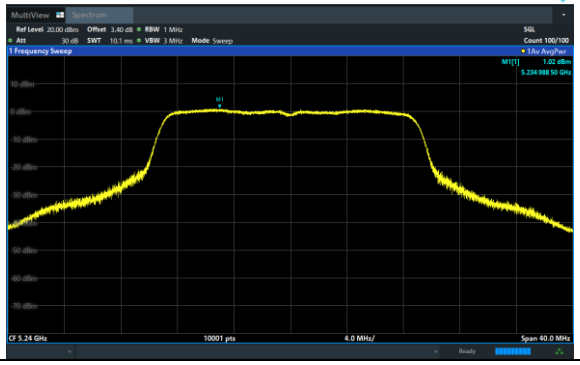

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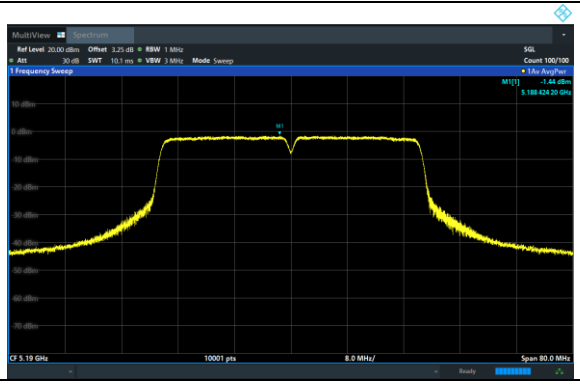	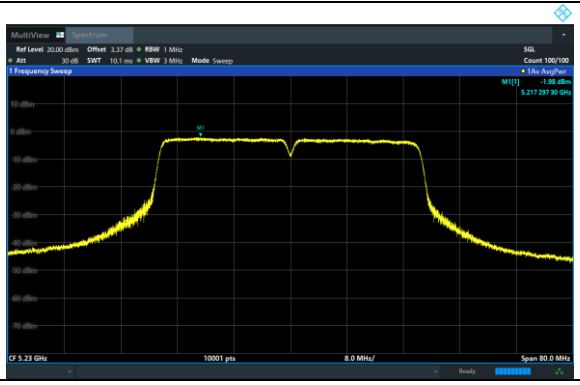
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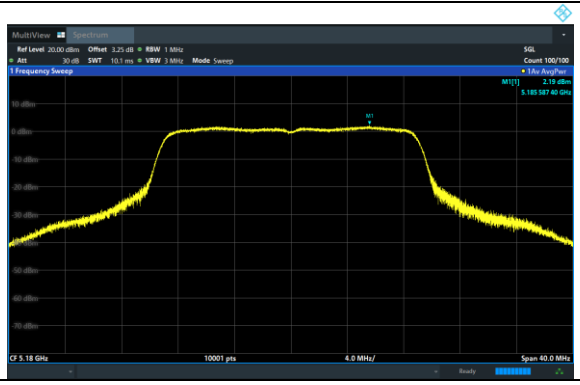
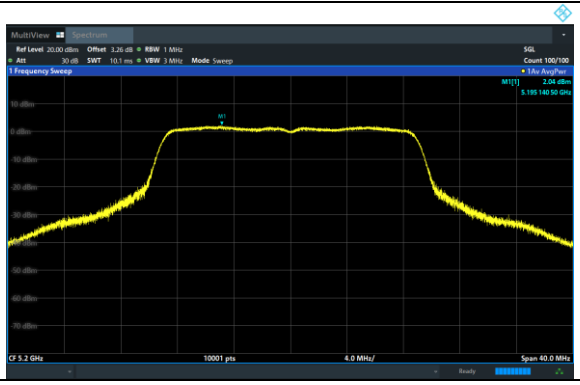
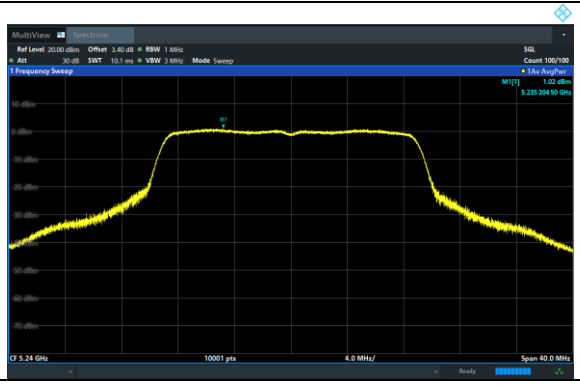
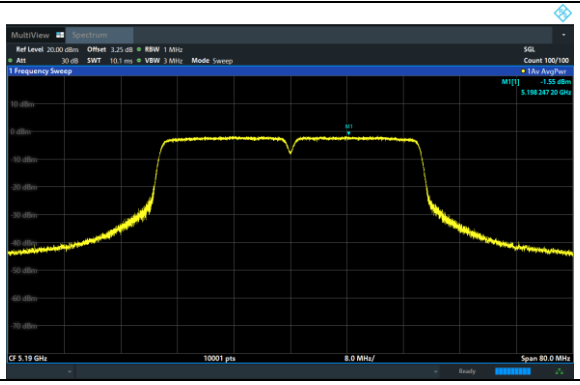
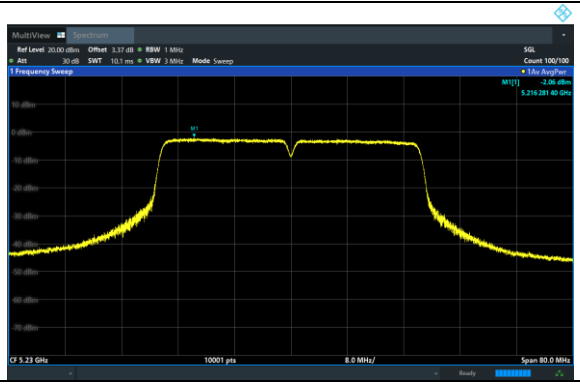
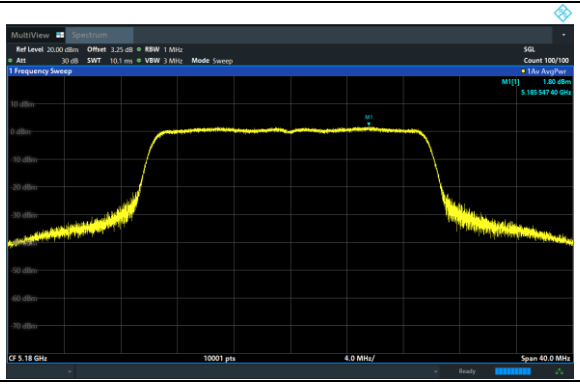
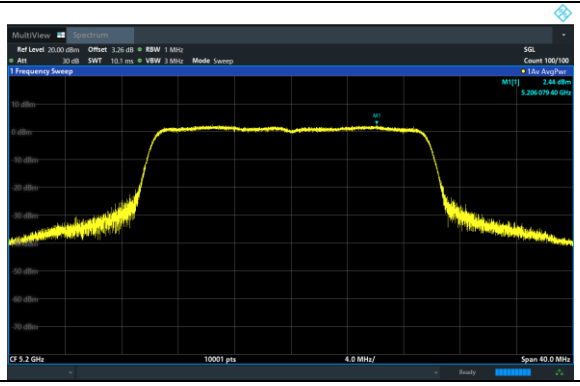
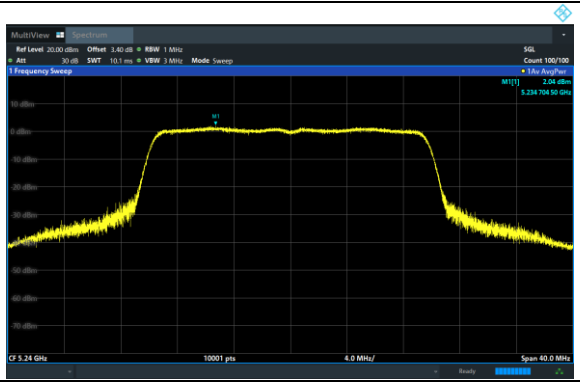
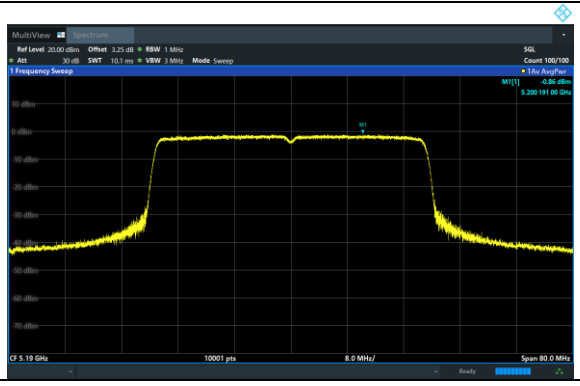
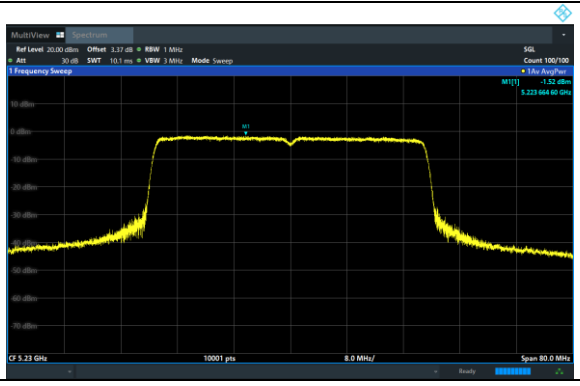
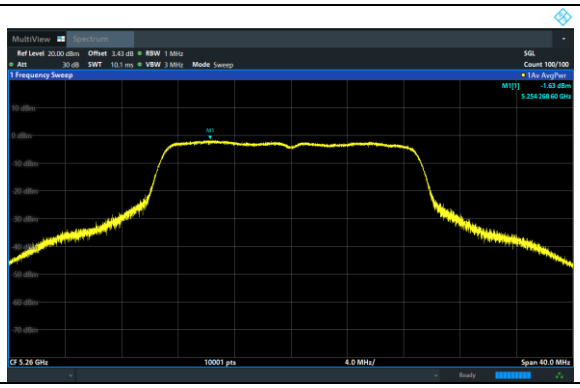
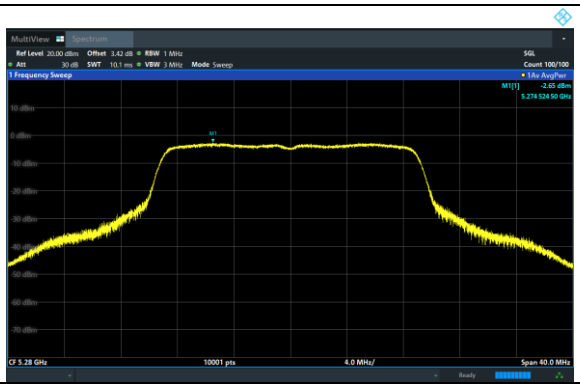
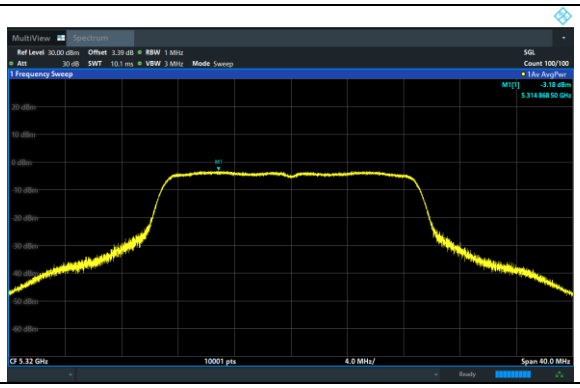
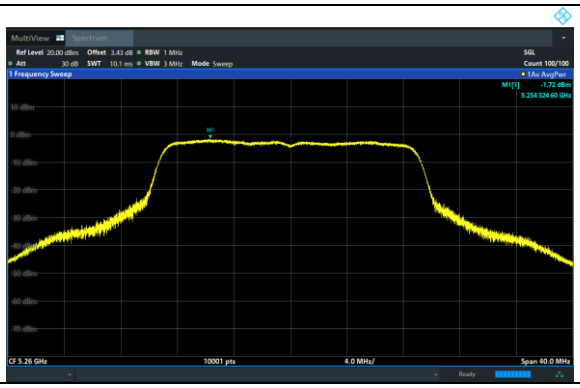
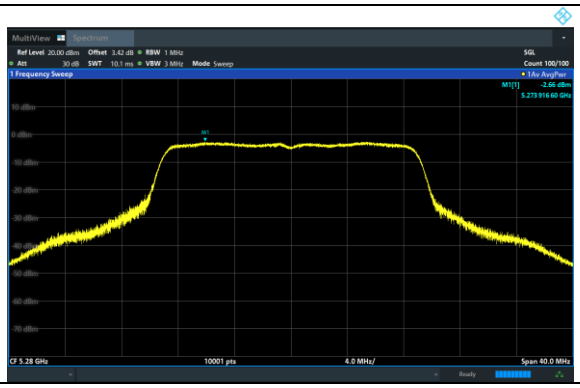
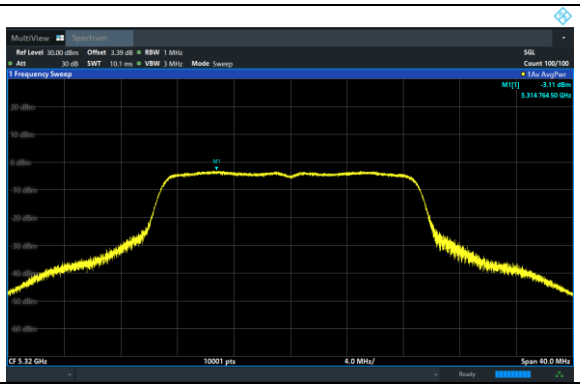
	
11ac20 CH48	**11ac40 CH38**
	

11ac40 CH46	11ax20 CH36
	
11ax20 CH40	**11ax20 CH48**
	
11ax40 CH38	**11ax40 CH46**
	

Test plots

U-NII-2A

11a CH52	11a CH56
	
11a CH64	**11n20 CH52**
	
11n20 CH56	**11n20 CH64**
	

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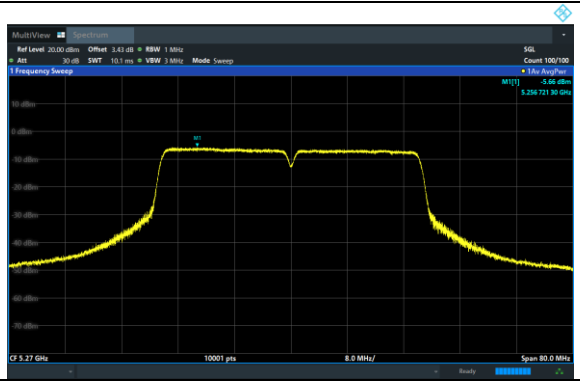	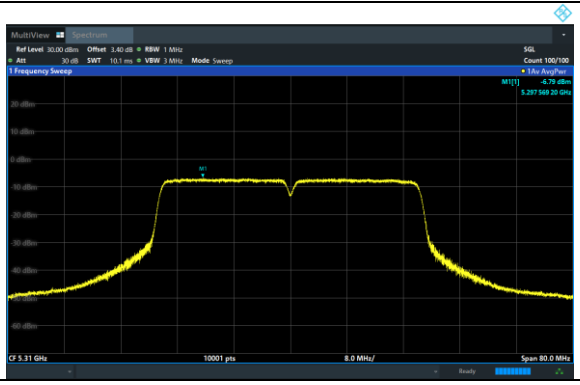
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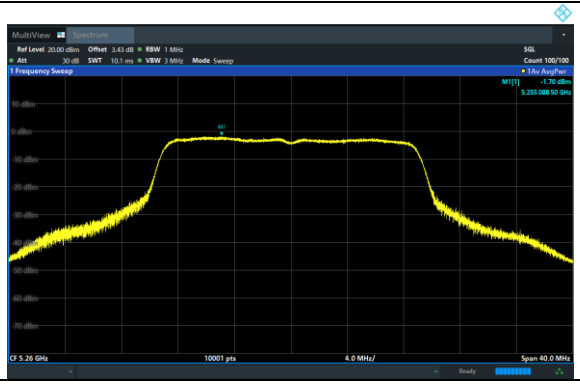	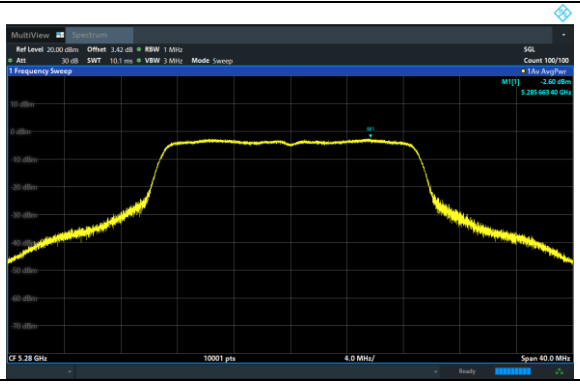
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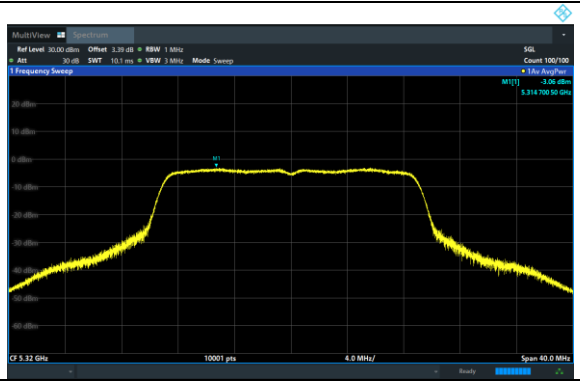
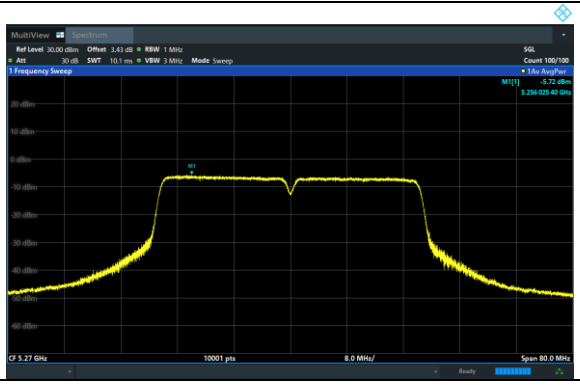
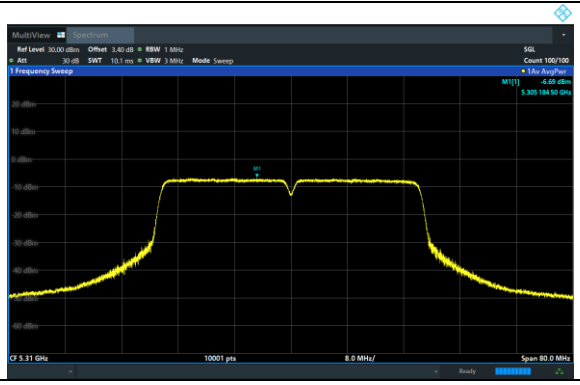
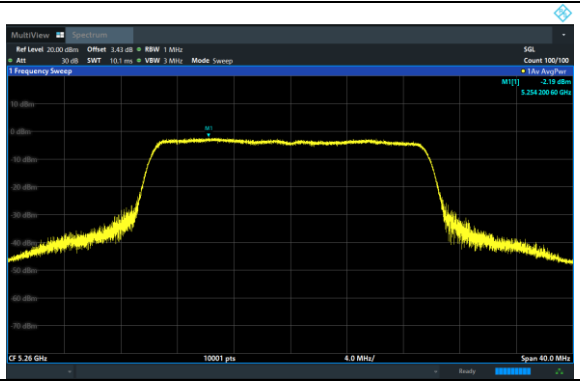
	

11ac40 CH62	11ax20 CH52
	
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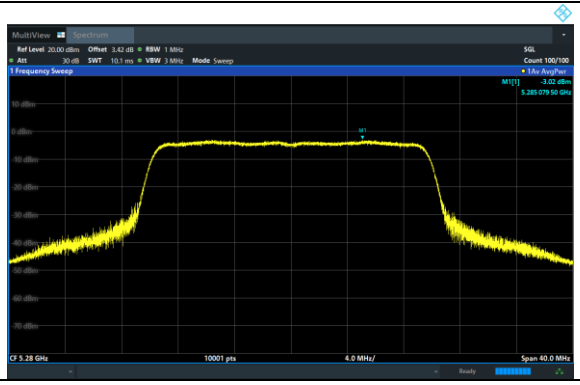	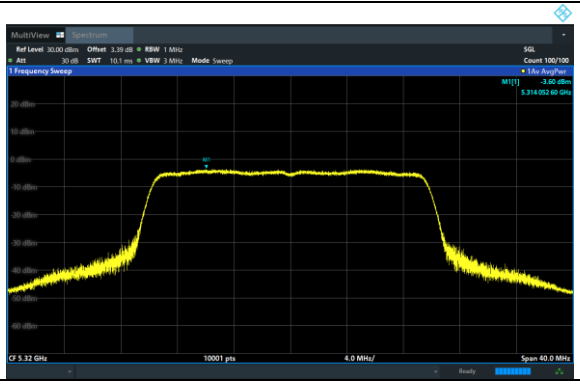
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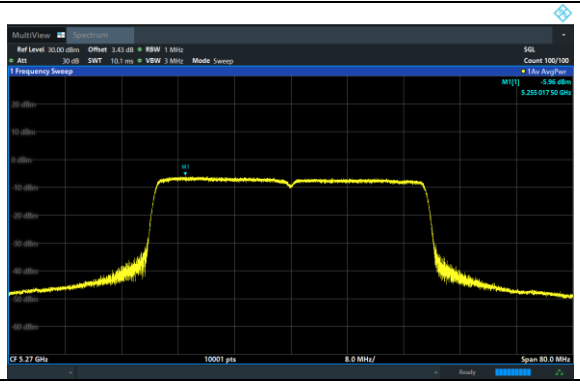	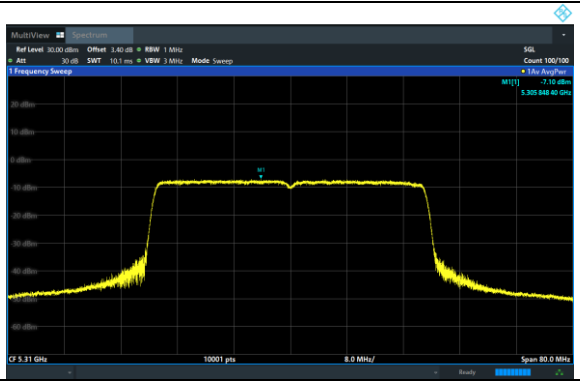

Test plots

U-NII-2C

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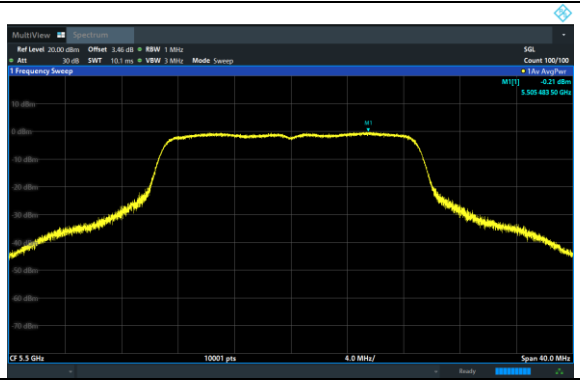
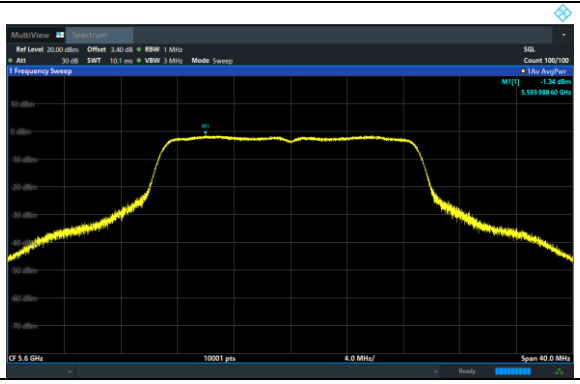
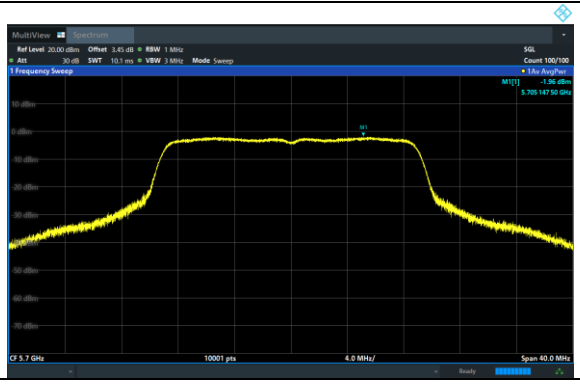
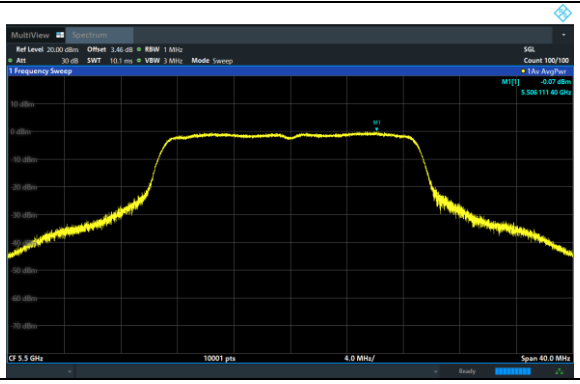
	
11a CH140	**11n20 CH100**
	
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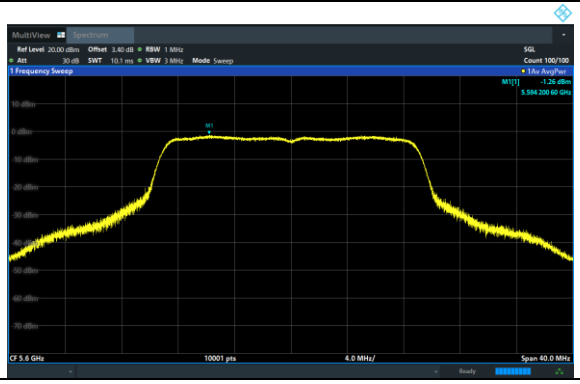	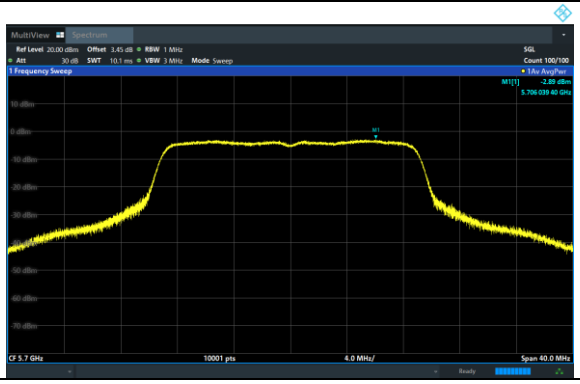

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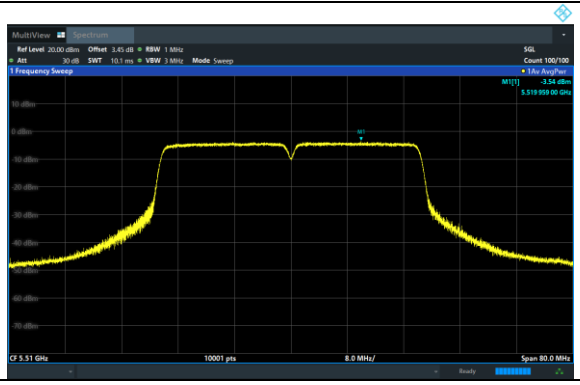	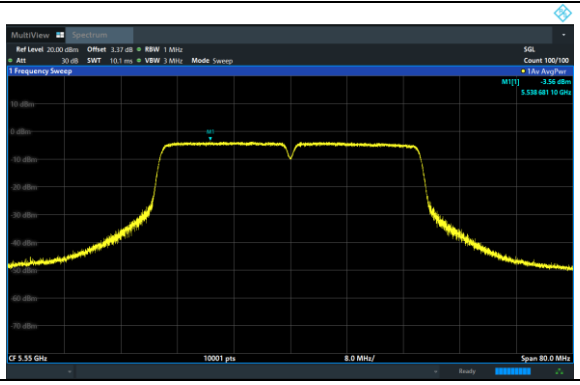
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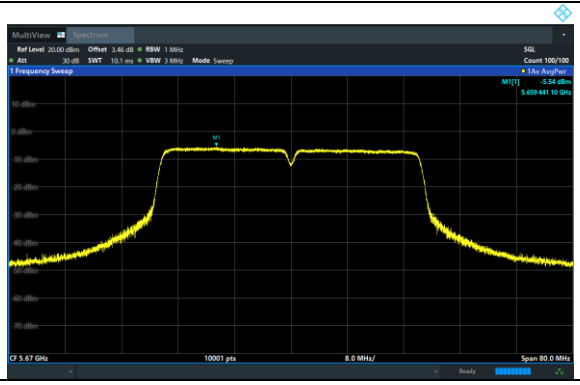	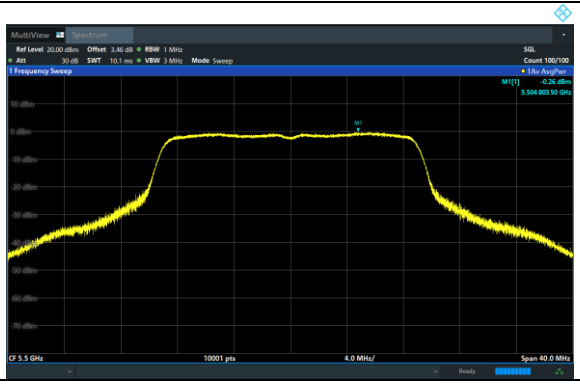
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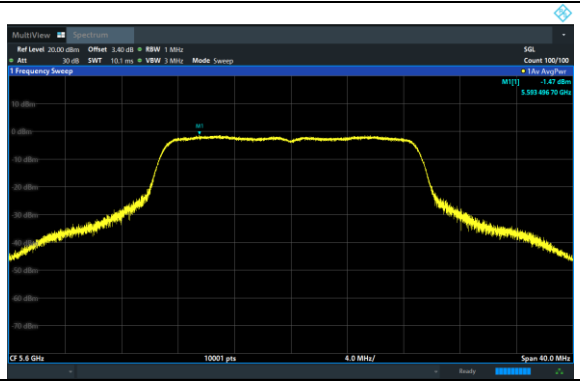	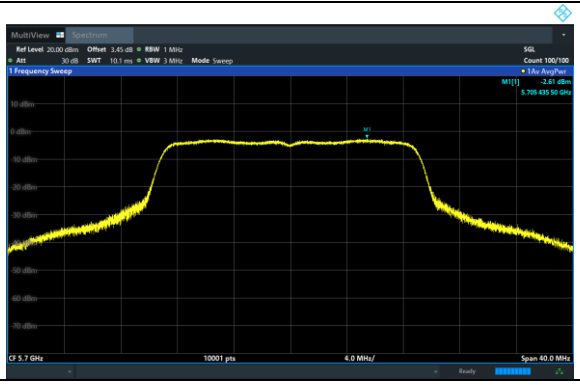

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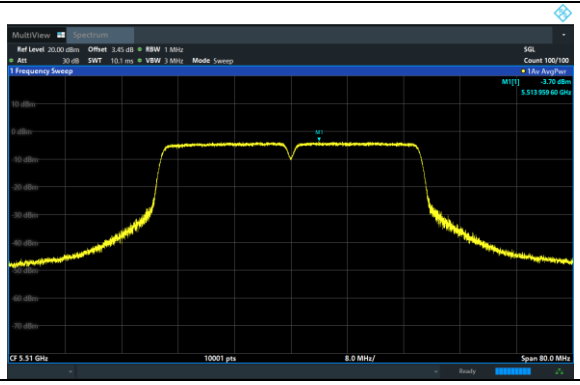	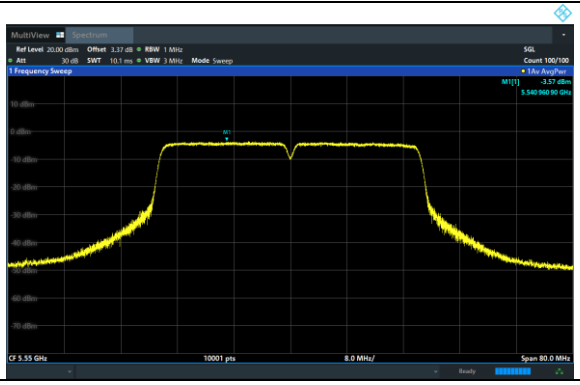
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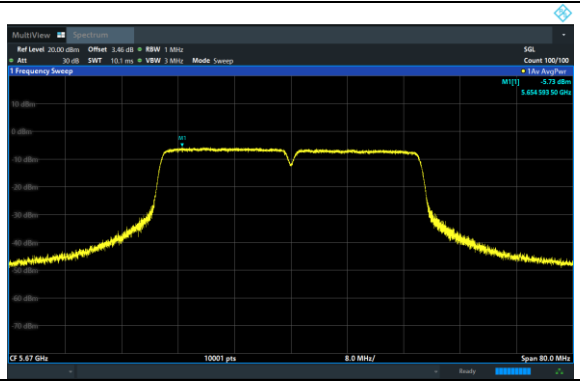	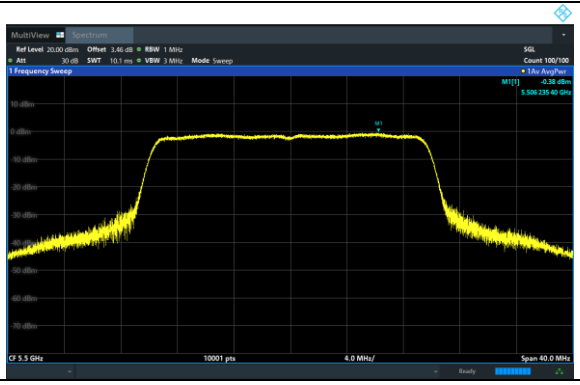
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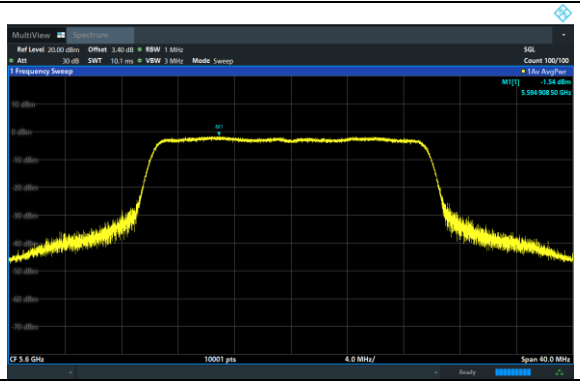	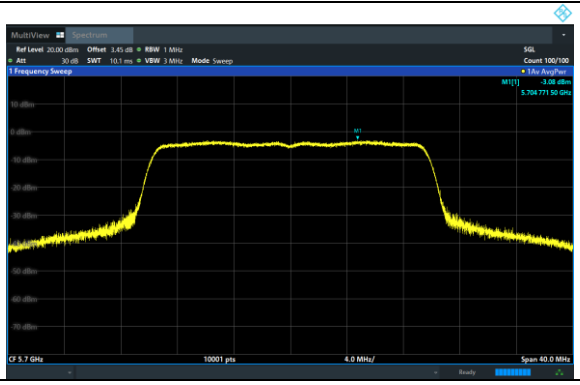

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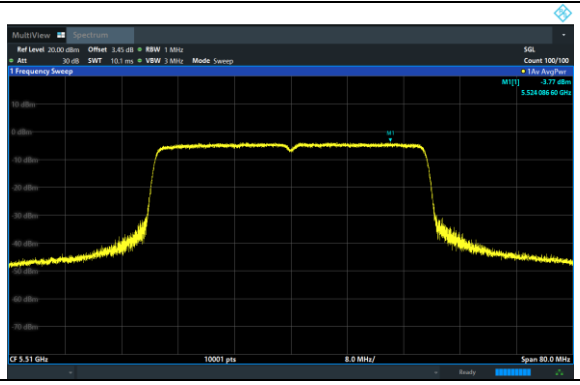	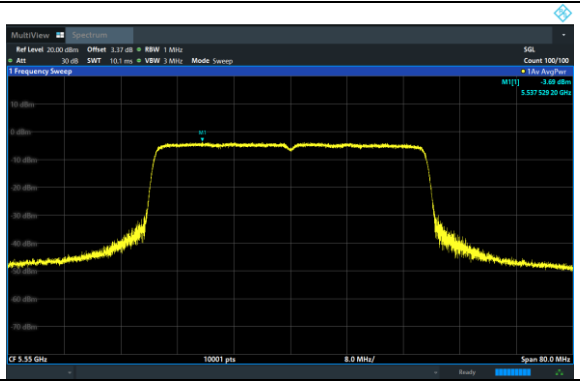
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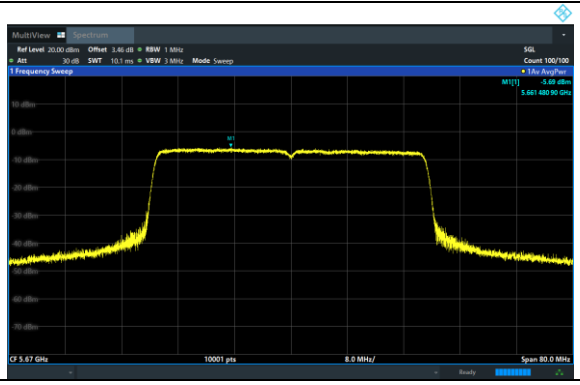
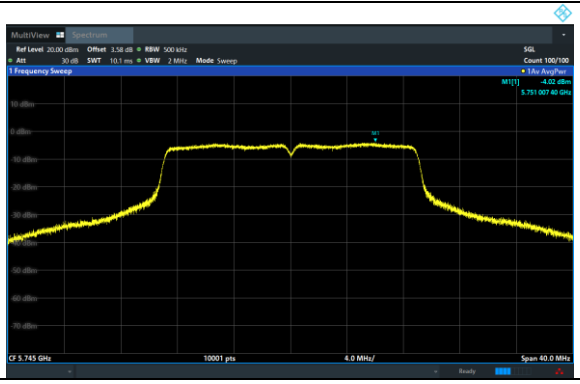
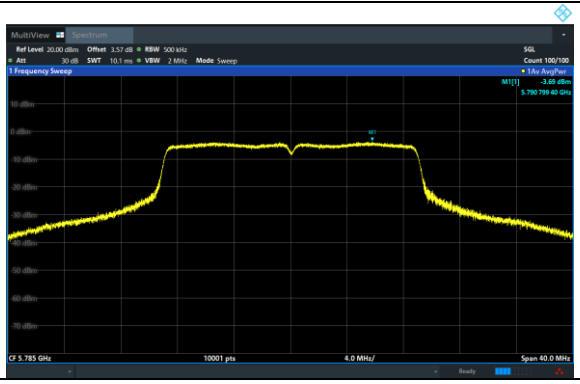
	/

Test plots

For U-NII-3

11a CH149	11a CH157
	
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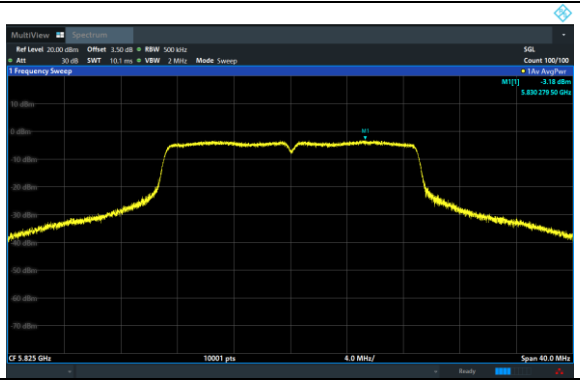	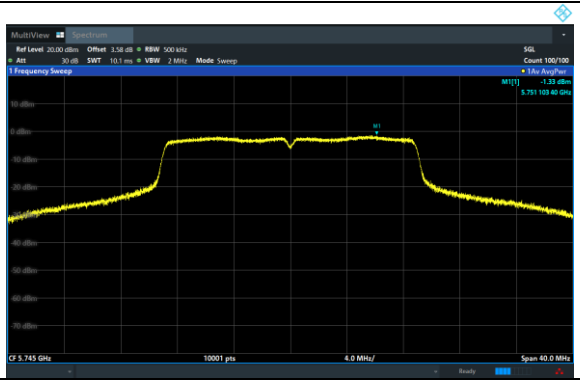
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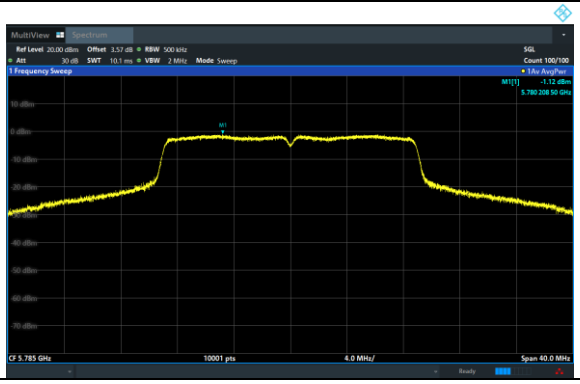	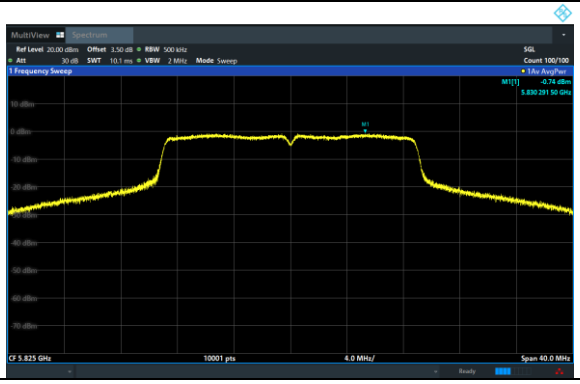

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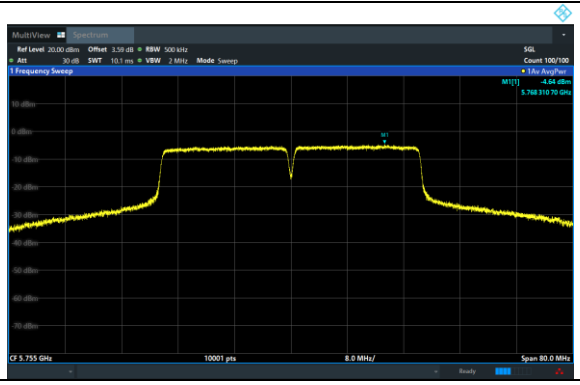	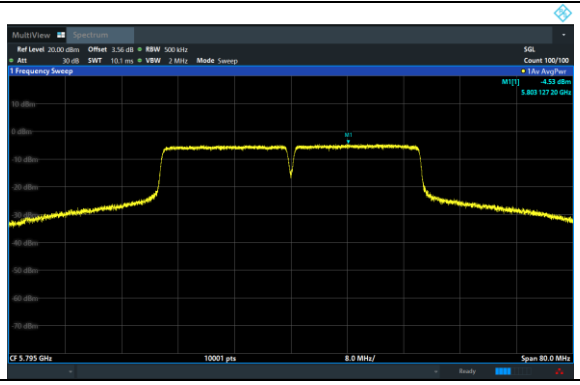
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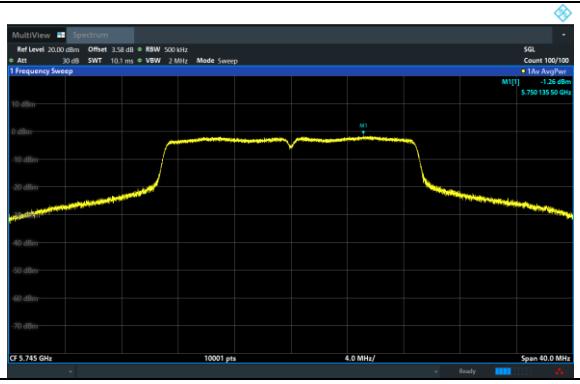
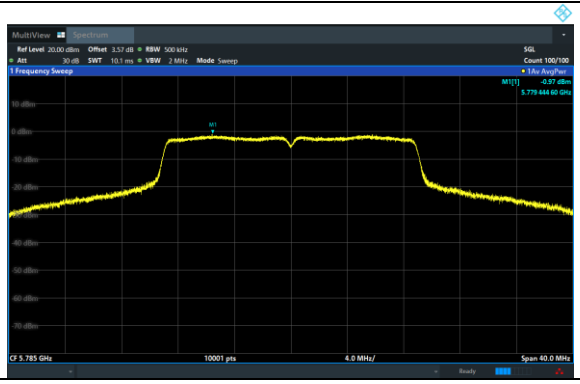
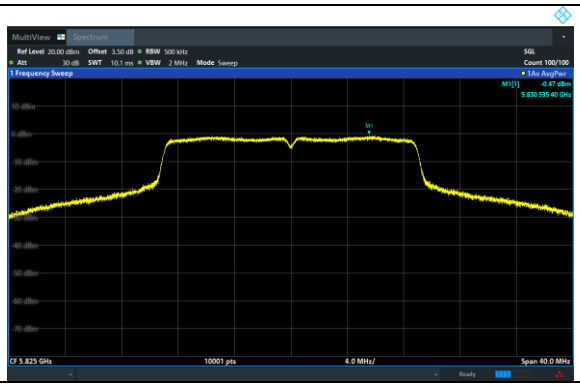
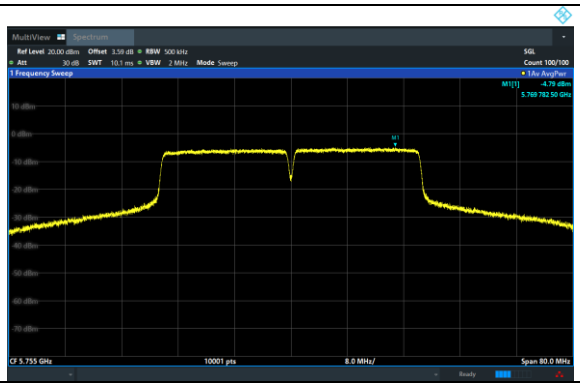
	
11ac20 CH165	**11ac40 CH151**
	

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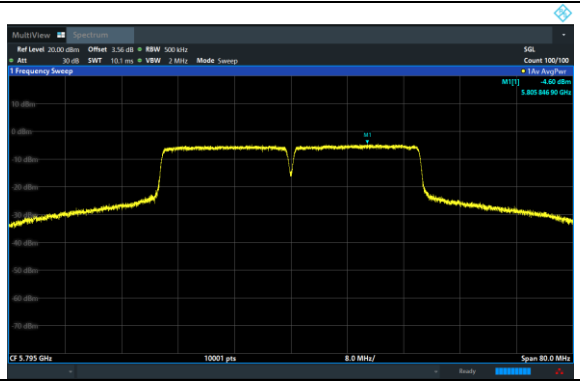
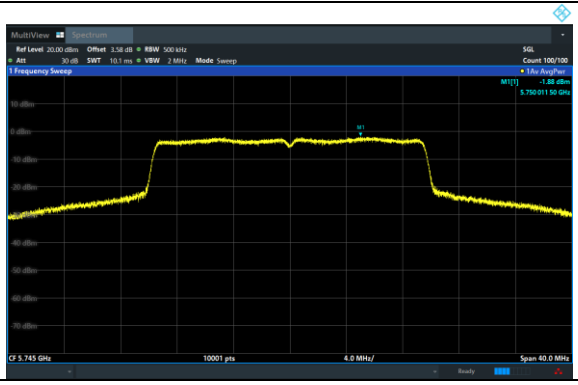
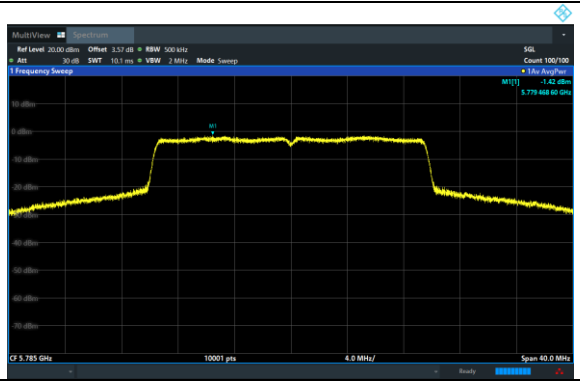
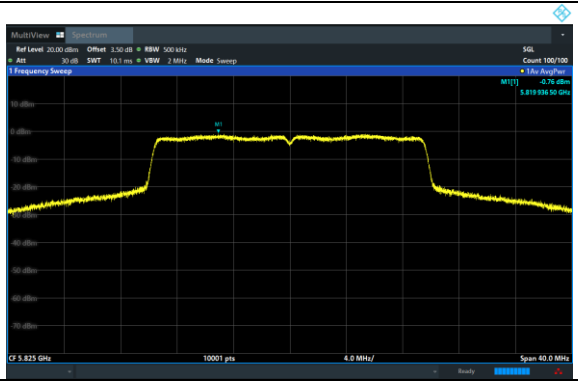
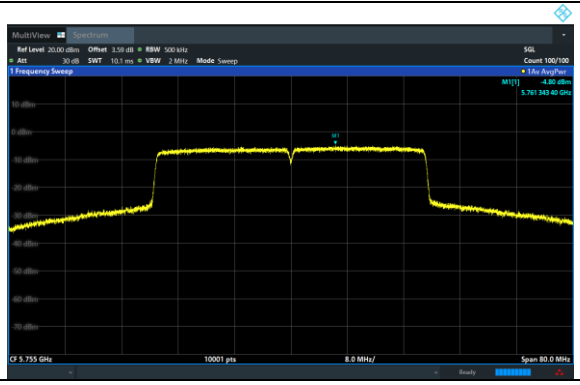
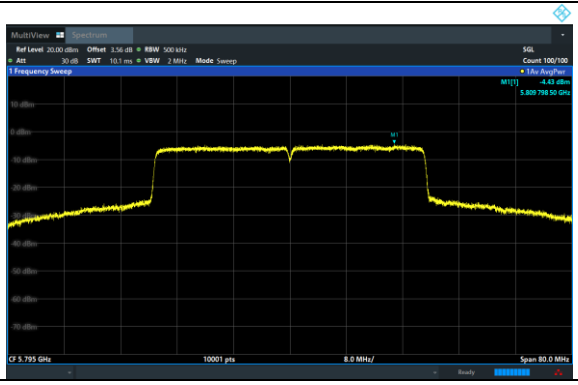
	
11ax20 CH157	**11ax20 CH165**
	
11ax40 CH151	**11ax40 CH159**
	

5.6 26dB Emission Bandwidth and Occupied bandwidth

5.6.1 Limit

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier

5.6.2 Test Procedure

26dB Emission bandwidth

Set RBW = approximately 1% of the emission bandwidth.

Set VBW ≥ 3*RBW

Detector = Peak.

Trace mode = Max hold.

Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

Occupied Bandwidth

Set Span = 1.5 times to 5.0 times the OBW

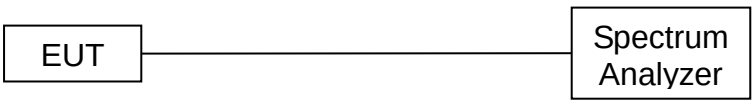
Set RBW = 1% to 5% of the OBW.

Set VBW ≥ 3*RBW, Detector = Peak.

Trace mode = Max hold.

Use the 99% power bandwidth function of the instrument.

5.6.3 Test Setup



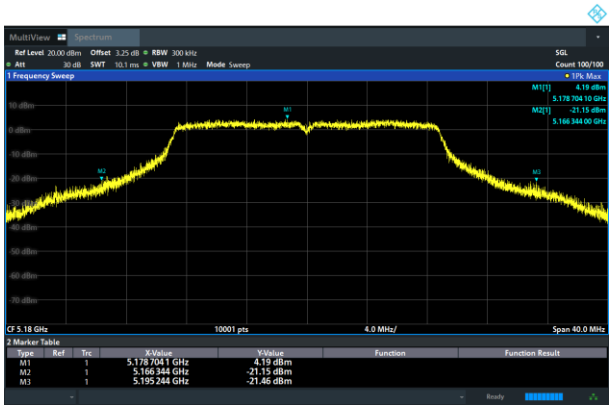
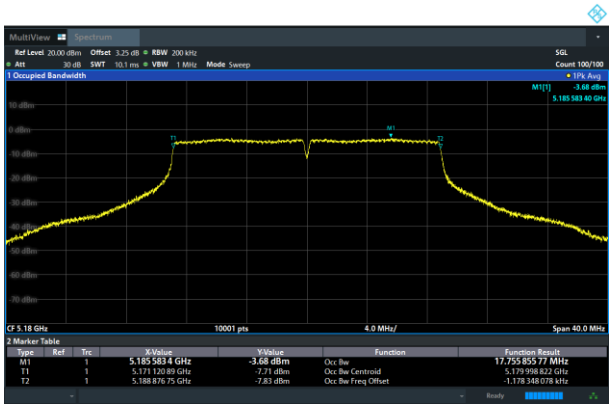
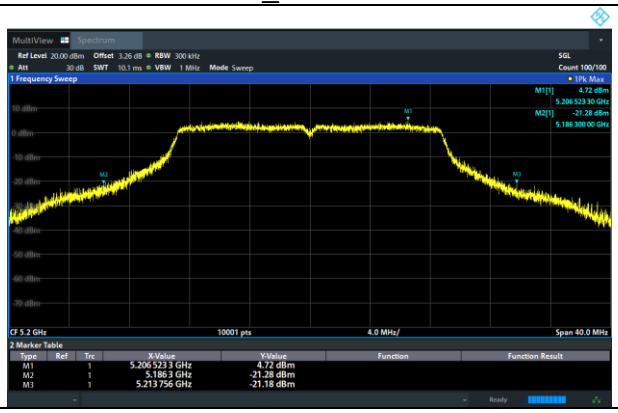
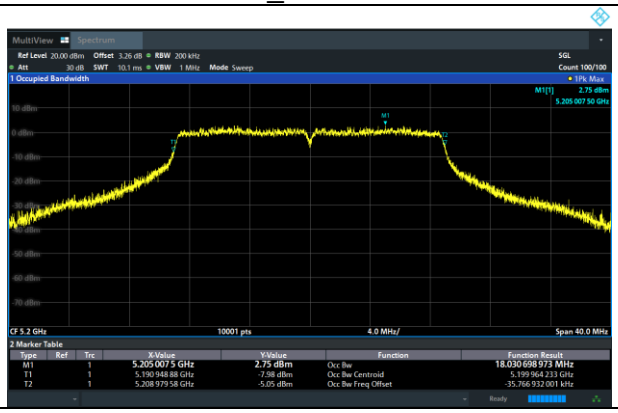
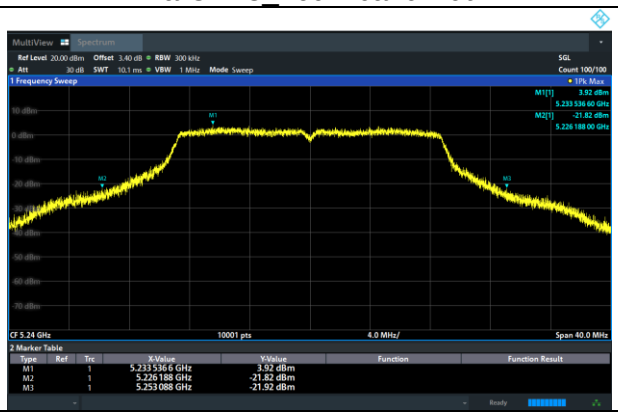
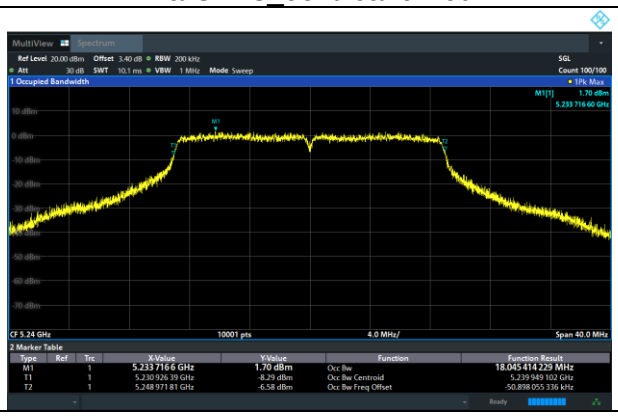
5.6.4 Test Results

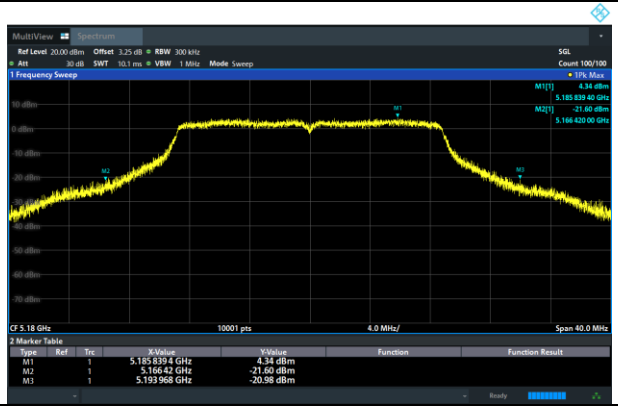
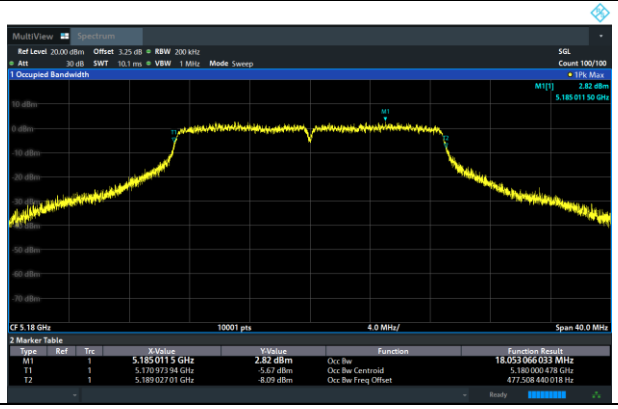
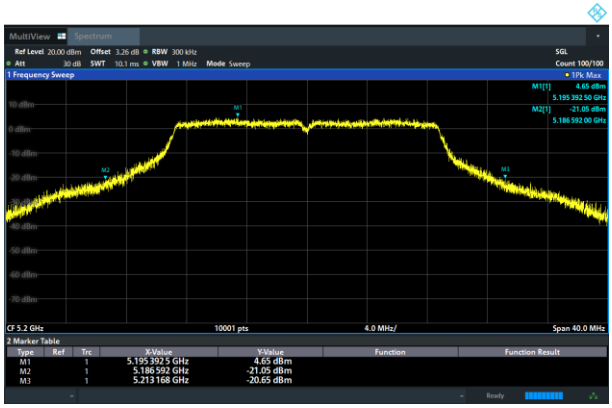
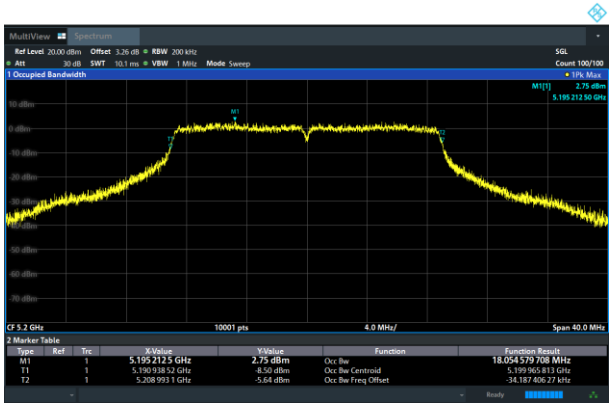
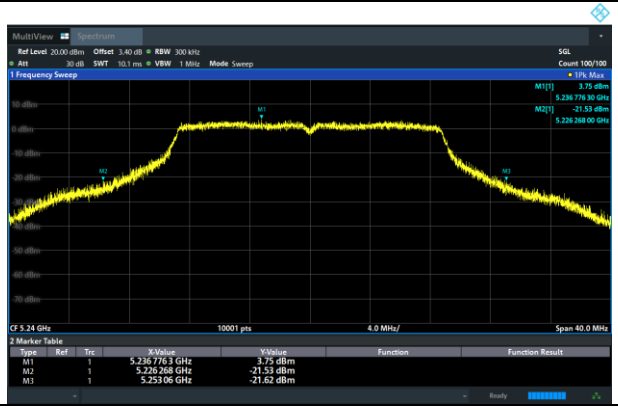
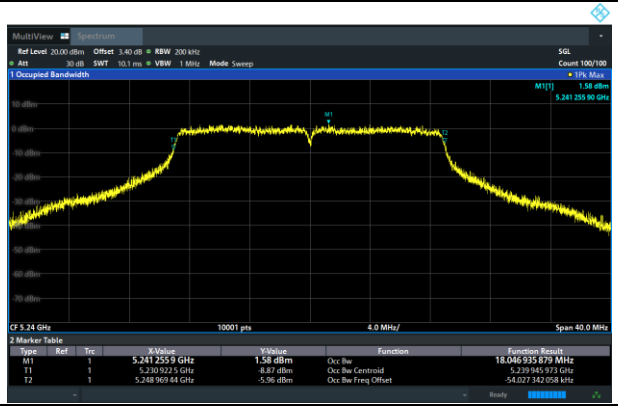
For U-NII-1

Channel	Test Channel	Frequency (MHz)	26dB bandwidth (MHz)	Limit (kHz)	99% bandwidth	Limit (kHz)	Result
11a	CH36	5180	28.9	/	17.756	/	Pass
11a	CH40	5200	27.456	/	18.031	/	Pass
11a	CH48	5240	26.9	/	18.045	/	Pass
11n (HT20)	CH36	5180	27.548	/	18.053	/	Pass
11n (HT20)	CH40	5200	26.576	/	18.055	/	Pass
11n (HT20)	CH48	5240	26.792	/	18.047	/	Pass
11n (HT40)	CH38	5190	46.32	/	36.734	/	Pass
11n (HT40)	CH46	5230	47.528	/	36.836	/	Pass
11ac (HT20)	CH36	5180	26.62	/	18.035	/	Pass
11ac (HT20)	CH40	5200	26.74	/	18.015	/	Pass
11ac (HT20)	CH48	5240	27.308	/	18.013	/	Pass
11ac (HT40)	CH38	5190	46.032	/	36.722	/	Pass
11ac (HT40)	CH46	5230	46.752	/	36.797	/	Pass
11ax (HE20)	CH36	5180	26.568	/	19.167	/	Pass
11ax (HE20)	CH40	5200	24.64	/	19.162	/	Pass
11ax (HE20)	CH48	5240	26.66	/	19.158	/	Pass
11ax (HE40)	CH38	5190	44.672	/	37.958	/	Pass
11ac (HE40)	CH46	5230	45.6	/	37.97	/	Pass

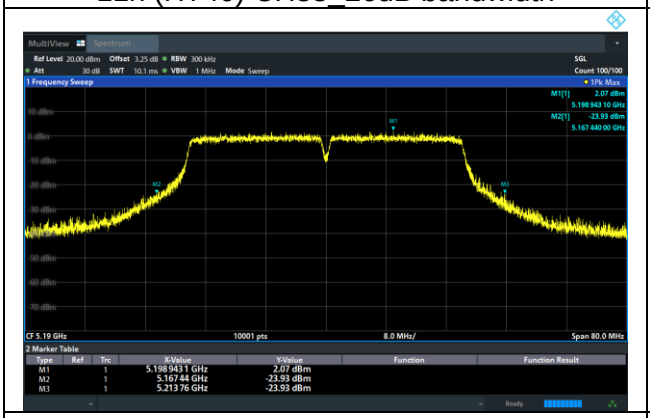
Test plots:

For U-NII-1

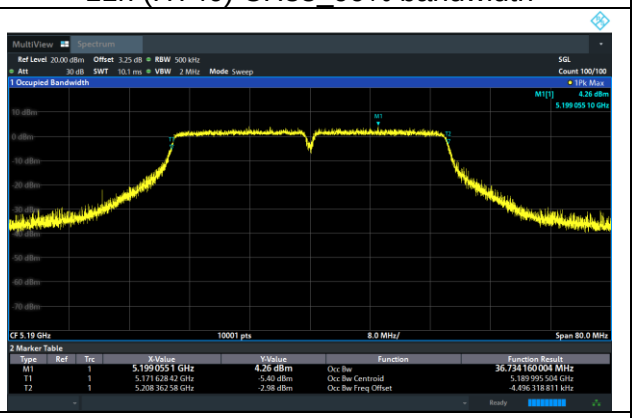
11a CH36_26dB bandwidth	11a CH36_99% bandwidth
	
11a CH40_26dB bandwidth	**11a CH40_99% bandwidth**
	
11a CH48_26dB bandwidth	**11a CH48_99% bandwidth**
	

11n (HT20) CH36_26dB bandwidth	11n (HT20) CH36_99% bandwidth
	
11n (HT20) CH40_26dB bandwidth	**11n (HT20) CH40_99% bandwidth**
	
11n (HT20) CH48_26dB bandwidth	**11n (HT20) CH48_99% bandwidth**
	

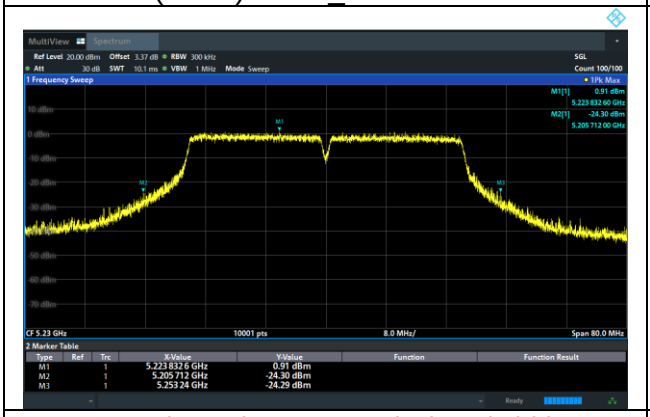
11n (HT40) CH38_26dB bandwidth



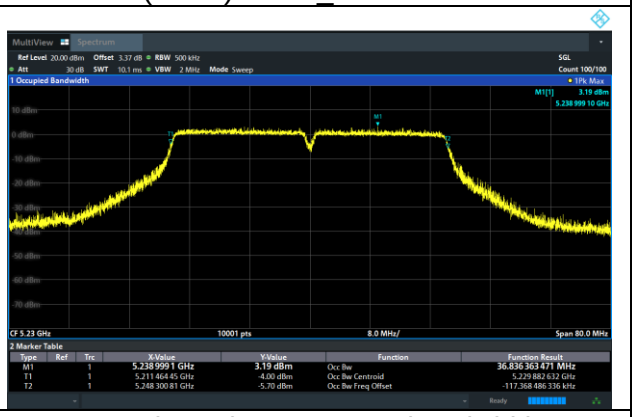
11n (HT40) CH38_99% bandwidth



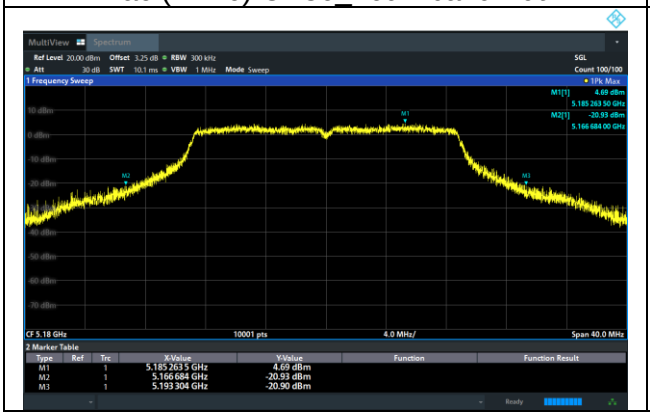
11n (HT40) CH46_26dB bandwidth



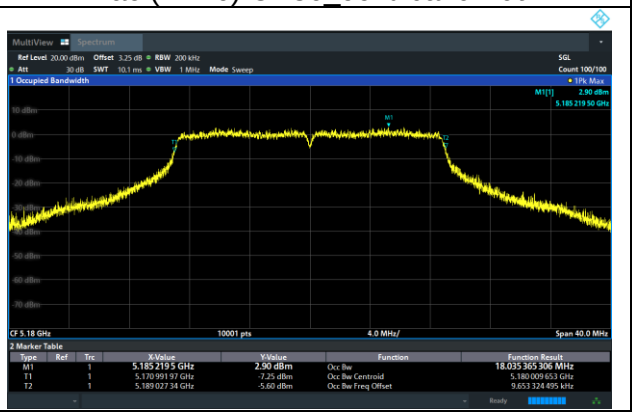
11n (HT40) CH46_99% bandwidth

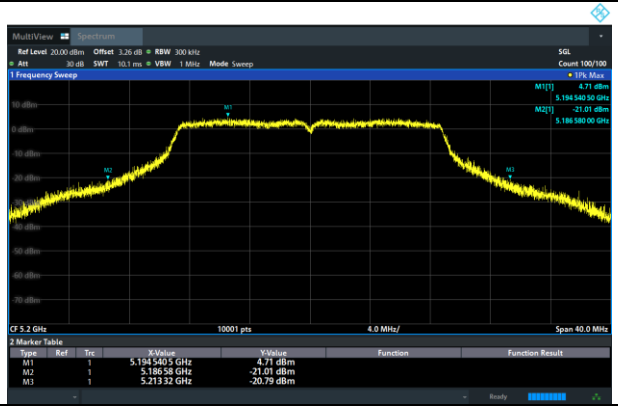
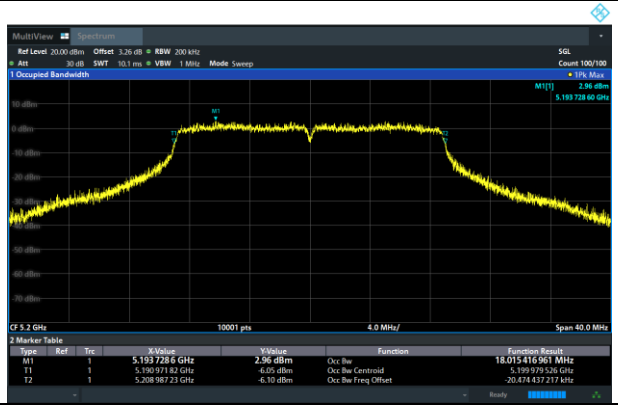
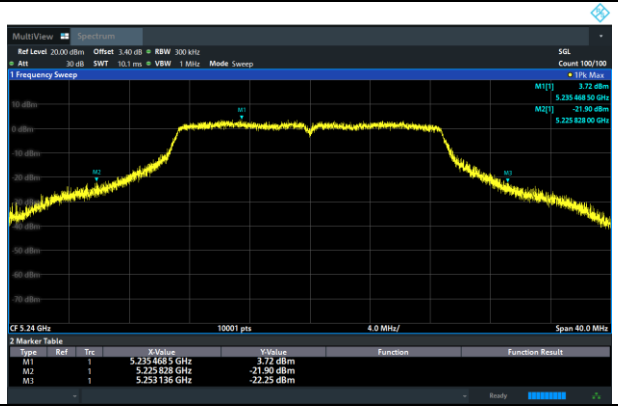
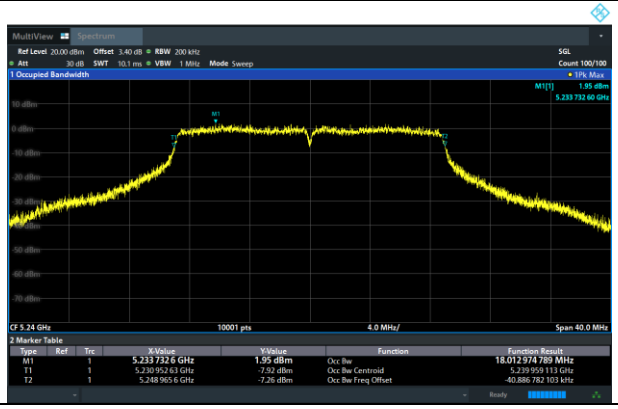
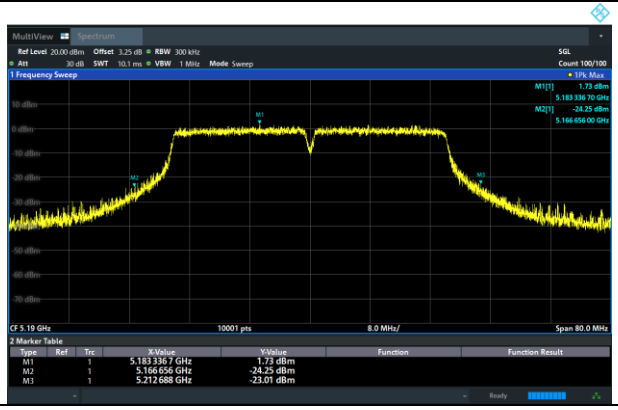
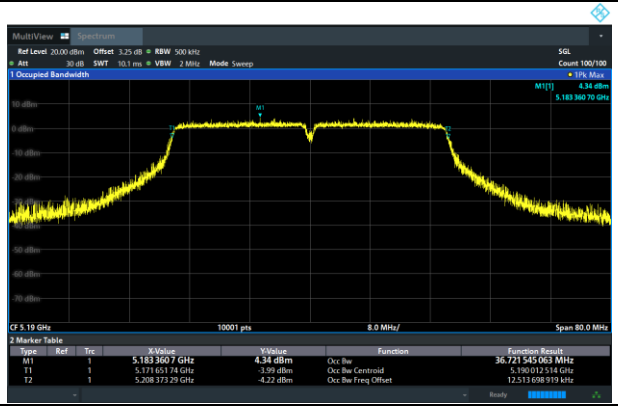


11ac (HT20) CH36_26dB bandwidth

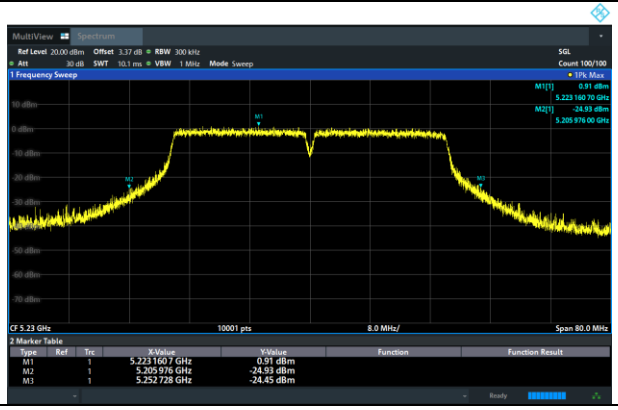


11ac (HT20) CH36_99% bandwidth

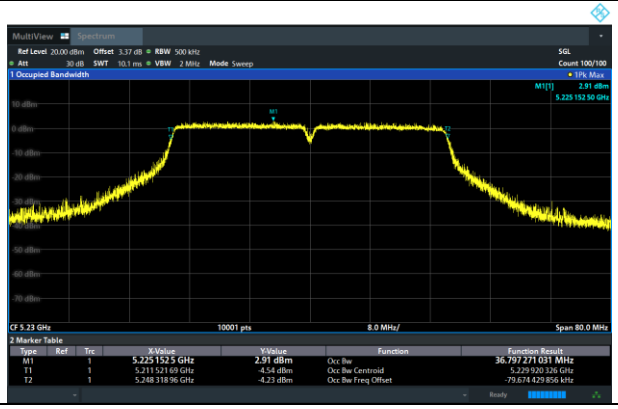


11ac (HT20) CH40_26dB bandwidth	11ac (HT20) CH40_99% bandwidth
	
11ac (HT20) CH48_26dB bandwidth	11ac (HT20) CH48_99% bandwidth
	
11ac (HT40) CH38_26dB bandwidth	11ac (HT40) CH38_99% bandwidth
	

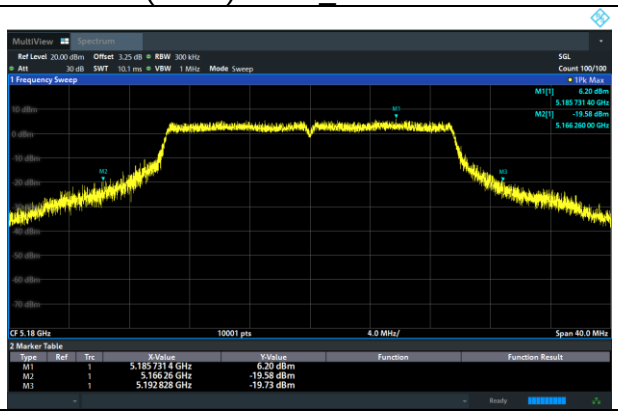
11ac (HT40) CH46_26dB bandwidth



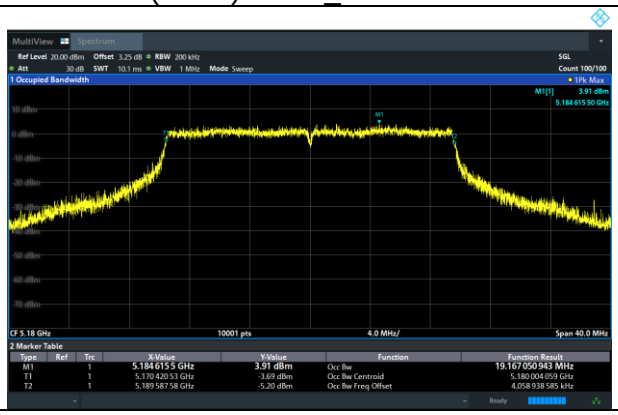
11ac (HT40) CH46_99% bandwidth



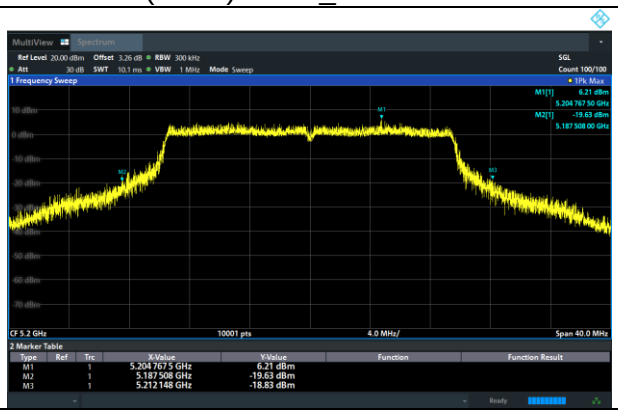
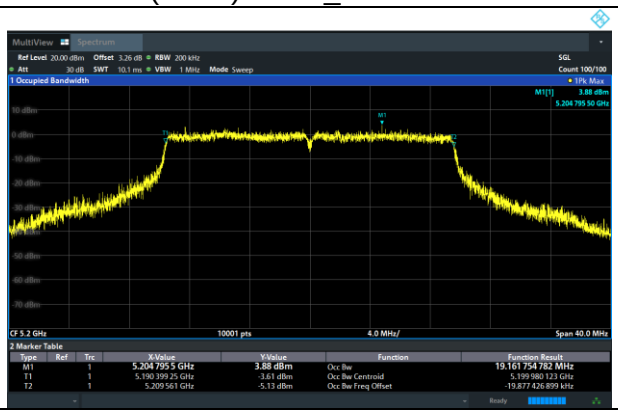
11ax (HT20) CH36_26dB bandwidth



11ax (HT20) CH36_99% bandwidth



11ax (HT20) CH40_26dB bandwidth



11ax (HT20) CH40_99% bandwidth